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AMSAT NEWS SERVICE
ANS-131

The AMSAT News Service bulletins are a free, weekly news and information service of AMSAT, The Radio Amateur Satellite Corporation. ANS publishes news related to Amateur Radio in Space including reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

The news feed on http://www.amsat.org publishes news of Amateur Radio in Space as soon as our volunteers can post it.

Please send any amateur satellite news or reports to:
ans-editor(a)amsat.org

You can sign up for free e-mail delivery of the AMSAT News Service Bulletins via the ANS List; to join this list see:
http://www.amsat.org/mailman/listinfo/ans

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ANS-131 AMSAT News Service Weekly Bulletins

AMSAT News Service Bulletin 131.01
>From AMSAT HQ KENSINGTON, MD.
DATE 2020-May-10
To All RADIO AMATEURS
BID: $ANS-131.01

2019 Back Issues of The AMSAT Journal on launch.amsat.org

AMSAT's new online member portal, launch.amsat.org, is up and running. All AMSAT members must log in and update their contact information to ensure continued, uniterrupted service. Full instructions for getting logged in are in the March/April issue of The AMSAT Journal, available for free download on amsat.org and launch.amsat.org. There is also separate instructions on each site.

Those interested in joining AMSAT can create an account, using the Join link on launch.amsat.org

IMPORTANT UPDATE: AMSAT's Member Portal not only puts you in charge of your member account but gives you exclusive access to member-only content. Want to read back issues of The AMSAT Journal, in full color? We just posted all 2019 issues, plus the first two issues of 2020. We will continue to work on uploading prior years, so check back often.

Log in today!

(ANS thanks Robert Bankston, KE4AL, AMSAT VP-Member Services for the above information)

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Two new Chinese amateur radio satellites are now expected to launch on September 15, 2020. The first of these satellites, CAS-7A, is a 27 kg microsat (750 mm x 650 mm x 260 mm) with three-axis stabilization and several transponders. The transponders include a 15m to 10m linear transponder (H/t), a 15m to 70cm linear transponder (H/u), and a 2m to 70cm linear transponder(V/u). The satellite also includes a 2m to 70cm (V/u) FM transponder. Several beacons and data downlinks are also featured, CW beacons on 10m and 70cm, 4.8k or 9.6k GMSK telemetry on 70cm, and a 1 Mbps GMSK image data downlink on 3cm for the on board camera. IARU coordinated frequencies for the uplinks and downlinks are listed below.

This launch is also expected to carry CAS-7C, a 2U CubeSat with a V/u linear transponder and a CW beacon. Frequencies for CAS-7C have not been coordinated by the IARU at the time of this writing. CAS-7C will also deploy a 1 mm diameter 1080 meter long carbon fiber rope.

CAS-7A and CAS-7C will launch from Jiuquan Satellite Launch Center into a 500 km sun-synchronous orbit with an inclination of 98 degrees.

Frequencies:

CAS-7A H/t Linear Transponder
Uplink - 21.245MHz through 21.275 MHz
Downlink - 29.435MHz through 29.465 MHz
CW Beacon 29.425 MHz

CAS-7A H/u Linear Transponder
Uplink - 21.3125 MHz through 21.3275 MHz
Downlink - 435.3575 MHz through 435.3725 MHz
CW Beacon 435.430MHz

CAS-7A V/u Linear Transponder
Uplink - 145.865 MHz through 145.895 MHz
Downlink - 435.385 MHz through 435.415 MHz
CW Beacon 435.430MHz

CAS-7A V/u FM Transponder
Uplink 145.950 MHz
Downlink 435.455 MHz

4.8k / 9.6k GMSK telemetry downlink - 435.480 MHz
1 Mbps GMSK image data downlink - 10460.00 MHz

[ANS thanks the IARU for the above information]

Cubesat Developers Workshop Presentations Available

Although we are not able to come together in San Luis Obispo for the CubeSat Developers Workshop today, we are excited to share some of the presentations that would have taken place with you online. Find the slide decks for these presentations on our archive <http://mstl.atl.calpoly.edu/~workshop/archive/> as well as videos on our YouTube channel <https://www.youtube.com/channel/UCENz0fNHsDR8Kz3jM6C_VWw/featured>.

You will also be able to find all of our previous Workshop presentations in NASA's Small Spacecraft Systems Virtual Institute (S3VI) <https://www.nasa.gov/smallsat-institute>. We are excited to have our archives integrated into S3VI and hope you can use this tool to further your research and involvement with CubeSat.

If you were selected to present your abstract at this year's Workshop and would still like your presentation to be included in our archive, email us at cubesat-workshop(a)calpoly.edu <mailto:cubesat-workshop(a)calpoly.edu>.

We also want to share some of our CDW Zoom backgrounds with you. Feel free to download and use them in your next meeting!

We look forward to welcoming you all back to San Luis Obispo from *April 27-29, 2021* for the next CubeSat Developers Workshop. We will continue to announce new deadlines and registration information via email and on our website <https://www.cubesat.org/workshop-information> as we continue to plan for 2021. Be sure to join the CubeSat Workshop mailing list <http://www.cubesat.org/mailinglist/> for future announcements.

We hope you continue working together (from home) to advance CubeSats

[ANS thanks JoAnne Maenpaa, K9JKM, for the above information]

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opments and opportunities that have developed since.

The website is here: https://www.hackasat.com/

Hack-a-Sat is an activity that was scheduled to happen at the in-person DEFCON event.

As of today, yes, it's true. DEFCON has been cancelled.

Those of you that have volunteered at Ham Radio Village in the past are familiar with the event. For those of you that are not, it's a long-running hacking and cybersecurity event that has enthusiastically adopted everything RF and amateur radio.

The United States Air Force, in conjunction with the Defense Digital Service, organized this year’s Space Security Challenge, called Hack-A-Sat. This challenge asks hackers from around the world to focus their skills and creativity on solving cybersecurity challenges on space systems. This competition is going to be held! It's now a virtual event.

Security in the amateur radio sense of the word is fundamentally different from commercial and military applications. We have an advantage here, mainly due to the enormous leverage we have due to our context being completely different from what the Air Force and commercial interests assume. This is, essentially, a diversity advantage.

If you want to participate on an experienced Capture The Flag (CTF) team, then I am here to extend an invitation. Anyone that reads through the rules and can afford to spend some time during the event is invited to apply to join Vaporsec. This is a team that has a majority of information security professionals. There are some satellite industry people, some amateur involvement, and I'd like to make sure that anyone interested in competing from AMSAT-BB gets a chance to join a competitive team.

The benefits to amateur radio are primarily technical, with policy and security a close second. The Air Force has some agendas here in terms of improving satellite security. Exposure to the challenges alone is a an excellent opportunity to learn more about modern satellite technology...and what a significant player in space wants to find out more about. Don't assume that that the challenges in the competition are going to be "too hard." What is trivial for one viewpoint is unsolvable for another.

I'll be writing about the event and what we learned when it is over, so this sort of knowledge will not be secret. However, there is no replacement for participation, and you could very well have the practical knowledge, gained from operating real satellites, that wins the competition. As you can see from the website, there is some real money involved and opportunities for technical writing.

Let me know at w5nyv(a)arrl.net if you would like to talk more about joining a CTF team for this really neat and unique event. Know someone that you think should participate? Please forward to them.

[ANS thanks Michelle Thompson, W5NYV, AMSAT Board Member for the above information]

NASA TV To Air Cygnus Departure From Space Station

Nearly three months after delivering several tons of supplies and sci-

entific experiments to the International Space Station, Northrup Grumman's unpiloted Cygnus cargo craft is scheduled to depart the International Space Station on Monday, May 11.

Live coverage of the spacecraft's release will air on NASA Television and the agency's website beginning at 11:45 a.m. EDT, with release scheduled for noon.

Dubbed the "SS Robert H. Lawrence," Cygnus arrived at the station on February 18. Within 24 hours of its release, Cygnus will begin its secondary mission, hosting the Spacecraft Fire Safety Experiment – IV (Saffire-IV), which provides an environment to safely study fire in microgravity. It also will deploy a series of payloads. Northrop Grumman flight controllers in Dulles, Virginia, will initiate Cygnus' deorbit to burn up in Earth's atmosphere Monday, May 25.

More information on Cygnus' mission and the International Space Station can be found at: http://www.nasa.gov/station

[ANS thanks Southgate ARC for the above information]

Online Amateur Radio Satellite Talk on Zoom

Robin Moseley, G1MHU, will give a talk on Zoom titled "Introduction to amateur satellites, meteor scatter, EME and ISS" on Wednesday, May 13, at 1830z

The presentation is being organised by the Denby Dales Amateur Radio Society and being on Zoom it'll be viewable on any Tablet or Smartphone with the Zoom App or from a Windows PC or Laptop.

The Zoom meeting ID is 278 609 9353 https://zoom.us/j/2786099353

[ANS thanks AMSAT-UK for the above information]

Satellite Distance Records Set

Satellite operators are rapidly pushing towards the 7,942 km theoretical maximum range on RS-44. The 7,859 km record held by KI7UNJ and JA0CAW was eclipsed on 06-May-2020 at 19:00 UTC with a QSO between EA4CYQ and UA0STM, a distance of 7,894 km. On 09-May-2020, this record fell again when W5CBF in Louisiana, USA worked LA7XK in Norway, a distance of 7,916 km.

Another claimed DX record was also claimed on May 6. This time it was on PO-101 (Diwata2PH). EA4SG reports working R9LR at 23:03 UTC. The distance between the two stations is 5,128 km.

Distance records for all satellites are maintained at:
https://www.amsat.org/satellite-distance-records/

Please email n8hm [at] amsat.org if you wish to claim a new record, longer distance QSO not yet documented, or records for any other satellite/transponder not yet listed. Please note that if a satellite carries multiple transponders or supports multiple frequency bands, records on each transponder/band may be claimed, such as Mode A and B on AO-7 or Mode U/S, L/S, U/K, etc, on AO-40. This includes the ISS and records may be claimed for the packet digipeater and crossband repeater, but does not include different operating modes on the same transponder (such as CW or SSB on AO-7 Mode B).

[ANS thanks Paul Stoetzer, N8HM, AMSAT Executive VP, for the above information]

Upcoming Satellite Operations

Mitch, AD0HJ, has decided to "go check on the tree" in North Dakota. He has also said he will be activating a bunch of grids:

5/20 UTC DN96/97
5/21 UTC DN78/88
5/22 UTC DN76/77
5/23 UTC DN86/87
5/24 UTC EN06/16

Details on his Twitter page, @ad0hj

Ron, AD0DX, and Doug, N6UA, are making another run at the elusive DL88 in Big Bend National Park, Texas. They tried this grid back in March, and due to the mud couldn't get to the grid, so never ones to quit, off they go again. The tentative date is Sunday May 31, 2020. They will be using the K5Z call sign. More information is available at the K5Z QRZ Page.

Please submit any additions or corrections to ke0pbr (at) gmail.com

[ANS thanks Paul Overnfor, KE0PBR, the *NEW* AMSAT rover page manager(!) for the above information. Welcome aboard, Paul.]

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AMSAT, along with our ARISS partners, is developing an amateur radio package, including two-way communication capability, to be carried on-board Gateway in lunar orbit.

Support AMSAT's projects today at https://www.amsat.org/donate/

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(ANS thanks Southgate ARC for the above information)

+ NASA will pay a staggering $146 million for each SLS rocket engine, with 4 needed per SLS flight. These Space Shuttle main engines were intended to be reused, but SLS will throw them away. Other things you could buy for $146 million: two basic Atlas V rocket launches, three Falcon 9 launches, or a fully expendable Falcon Heavy launch, with 2/3 the lift capacity at 1/20th the cost.
(ANS thanks The Orbital Index for the above information)

+ A study has found that all 1,078 commercially-launched smallsats in the last five years experienced delays, with a median delay of 128 days. The largest delay categories: 11% of delays were administrative, 13% were ISS manifest changes (for ISS-deployed sats), 20% were due to delays in launch vehicle development, and 40% were due to primary payload delays affecting their rideshares. Full report at https://bit.ly/3fuw1Mz
(ANS thanks The Orbital Index for the above information)

+ A satellite built by Air Force Academy cadets will launch into space May 16 aboard the X-37B, Orbital Test Vehicle sponsored by the Department of the Air Force Rapid Capabilities Office and built by Boeing. This is the first time a satellite built and designed by cadets will catch a ride into space aboard the X-37B. FalconSAT-8 will carry five experimental payloads, and members of the Cadet Space Operations Squadron will operate it. There was no mention of amateur radio connected with this satellite, nor has there been a request for IARU frequency coordination in the amateur radio satellite service, although previous FalconSats have had amateur radio payloads.
(ANS thanks U.S. Air Force Academy for the above information)

+ When a new crew member arrives on the International Space Station, the population of humans living in space changes, of course. But so, too, does the population of microbes. As we have all learned in this time of Covid-19, countless types of microorganisms inhabit our bodies, inside and out, and when an astronaut arrives on the station, they bring their specific collection of microbial "hitchhikers" with them. A new study shows that the microorganisms living on surfaces inside the space station so closely resembled those on an astronaut's skin that scientists could tell when this new crew member arrived and departed, just by looking at the microbes left behind. Many of the microorganisms living in and around us are harmless or even essential for good health, but some can cause disease or damage structures in built environments. https://bit.ly/3dlEobi
(ANS thanks spacedaily.com for the above information)

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office.

Primary and secondary school students are eligible for membership at one-half the standard yearly rate. Post-secondary school students enrolled in at least half time status shall be eligible for the student rate for a maximum of 6 post-secondary years in this status. Contact Martha at the AMSAT Office for additional student membership information.

73 and Remember to help keep amateur radio in space,
This week's ANS Editor, Mark D. Johns, K0JM

k0jm at amsat dot org